



Issue 16 - April 2016

Please visit <http://exep.jpl.nasa.gov/newslettersarchive-htmlfiles/2016April.html> to view the HTML version of this newsletter.

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Do you have an accomplishment or event you want to share in Community Highlights? Send it to us at nasaexoplanetnews@jpl.nasa.gov. Please limit your submissions to no more than 150 words.



New Chief Scientist and Chief Engineer named

ExEP welcomes new [Chief Scientist Karl Stapelfeldt](#) and [Chief Engineer Keith Warfield](#).

1. Message from NASA Astrophysics Division Director



By Paul Hertz, Director, NASA Astrophysics Division

The Astrophysics Division is preparing to execute a rich portfolio of activities in the New Year, as I described during the NASA Town Hall at the 227th meeting of the American Astronomical Society in Kissimmee, FL. The fiscal year (FY) 2016 appropriation provides funding for NASA astrophysics to continue its programs, missions, projects, and supporting research and technology; the operating missions continue to generate important and compelling science results, and new missions are under development for the future; and progress is being made toward recommendations of the 2010 Decadal Survey.

- The National Academies has formed an ad hoc Committee, chaired by Dr. Jacqueline Hewitt, to conduct a Review of Progress Toward the Decadal Survey Vision in New Worlds, New Horizons in Astronomy and Astrophysics. The committee has held three meetings so far. Details, including my presentations, may be found at http://sites.nationalacademies.org/SSB/CurrentProjects/SSB_161177.
- NASA Research and Analysis (R&A) funding continues to grow. NASA also funds the community through the mission Guest Observer (GO) programs. In 2015, NASA received ~3750 proposals for R&A or GO funding. The selection rate in 2015 was 24% for R&A proposals and 28% and for GO proposals. 100% of the 2015 selections were announced within 155 days of proposal submission. This year, in addition to the regular research opportunities solicited through the Research Opportunities in Space and Earth Science (ROSES) NASA Research Announcement and mission GO programs, a fall 2016 release date is targeted for a Medium-class Explorer (MIDEX) solicitation (<http://explorers.larc.nasa.gov/APMIDEX2016/>). Note that there are changes in ROSES regarding public access to Federal research. Please read ROSES-2016 carefully, and consult the FAQs at <http://science.nasa.gov/researchers/sara/faqs/dmp-faq-roses/>.
- JWST continues to make technical progress during its integration and test phase according to its plan. The Telescope Structure (TS) has been completed and shipped to Goddard Space Flight Center for integration of the mirrors; the second Telescope Pathfinder test at Johnson Space Center is complete; the Spacecraft Bus Structure has been delivered for Integration and Testing at the prime contractor's

For information on any of the stories or events below, please visit:

<http://exep.jpl.nasa.gov/newslettersarchivist/>

EXOPLANETS IN THE NEWS

March 29, 2016

NASA selects instrument team to build next-gen planet hunter

March 21, 2016

Planet hunter breaks ground with supernovas

February 18, 2016

Let the great world spin

February 17, 2016

Veteran astronomer joins JPL exoplanet team

January 27, 2016

Combing the galaxy for habitable worlds

January 20, 2016

Far beyond Pluto, a possible Planet Nine awaits discovery

December 31, 2015

Year in Review: Top 5 exoplanet moments of 2015

December 15, 2015

8 alien planets that will make you believe Star Wars is real

November 19, 2015

Baby pictures: The first photos of a planet being born

November 3, 2015

These aren't the planets you're looking for

October 23, 2015

20 Intriguing Exoplanets

October 21, 2015

WFIRST-AFTA: Future planet finder

facility in California. Mirror installation into the Telescope Structure was completed in January 2016 and can be observed on the WebbCam at <http://jwst.nasa.gov/>. Plans for 2016 include completion of cryovacuum testing of the Integrated Science Instrument Module including all four instruments, installation of the Integrated Science Instrument Module into the Telescope Structure, secondary mirror installation, and completion of fabrication of the Flight Sunshield membranes. JWST remains on cost and on schedule for an October 2018 launch.

- The Wide-Field Infrared Survey Telescope (WFIRST) starts formulation in February 2016 when it passes its review by the NASA Agency Program Management Council. In December 2015, the mission completed its Mission Concept Review, all of the technology development milestones for the two instruments were achieved on schedule, and the Formulation Science Working Group and Science Investigation Teams were selected following a peer review of competitive proposals. In 2016, the Science Working Group will develop the WFIRST science requirements, the mission concept will be matured, and technology development for the widefield instrument and the coronagraph instrument will be further advanced to TRL-5.
- NASA intends to partner with ESA on the ESA-led Large 3 (L3) gravitational wave mission with launch in 2034. This responds to the recommendations of the 2010 Astrophysics Decadal for a space-based gravitational wave observatory. Following the successful launch of the LISA Pathfinder, NASA has formed an L3 Study Team (L3ST) drawing membership from members of the US astrophysics community. The L3ST Charter and list of selected members can be found at <http://pcos.gsfc.nasa.gov/studies>.
- The Japanese X-ray observatory ASTRO-H (now called Hitomi), including NASA provided elements of the Soft X-ray Spectrometer and the Soft X-ray Telescope, was successfully launched on February 17, 2016 (<https://heasarc.gsfc.nasa.gov/docs/astroh/>). The Hitomi Cycle 1 GO call is planned for April 2016.
- NASA is developing two astrophysics experiments for launch to the International Space Station. The Cosmic Ray Energetics and Mass for the ISS (ISS-CREAM) (http://www.nasa.gov/mission_pages/station/research/experiments/1114.html) experiment was delivered to Kennedy Space Center in August 2015; it is awaiting a ride to the Space Station on the Commercial Resupply Service SpaceX-12 launch, planned for spring 2017. The Neutron star Interior Composition Explorer (NICER) (<https://heasarc.gsfc.nasa.gov/docs/nicer/>) has entered its final integration and test phase; NICER will be completed by late summer 2016 and will await its ride to the Space Station on CRS SpaceX-11, planned for winter 2017.
- NASA's standard Announcement of Opportunity (AO) revision process is being revised with goals of reducing the burden on proposers and increasing the efficiency of review (http://soma.larc.nasa.gov/standardao/sao_templates.html).
- The restructuring of the Science Mission Directorate's education program is nearing completion. Of the 73 compliant proposals submitted to the Science Education Cooperative Agreement Notice solicitation last year, 27 have been selected for execution. Fifteen of these include Astrophysics content (three of them are exclusively Astrophysics.) A meeting of the Principal Investigators was held in Westlake, TX on January 19-21, 2016, to form additional partnerships to leverage off each other's strengths.
- The Senior Review of the NASA astrophysics operating missions in extended phase was held in February and March 2016. We expect to release the review report into the community by June 2016. More information may be found on <http://science.nasa.gov/astrophysics/2016-senior-review-operating-missions/>.
- Preparations for the 2020 Decadal Survey are well under way. The three Astrophysics Program Analysis Group reports on large mission concepts were presented to the Astrophysics Subcommittee in October 2015 and are available at <http://cor.gsfc.nasa.gov/copag/rfi/>. NASA is initiating community-led studies of four large mission concepts by chartering Science and Technology Definition Teams for each of the four mission concepts. The charter and management plan for these mission concept activities are available at <http://science.nasa.gov/astrophysics/2020-decadal-survey-planning/>.

My entire Town Hall Presentation from the January AAS meeting, is available at <http://science.nasa.gov/astrophysics/documents/>.

2. Program Manager's Update



By Gary Blackwood, Manager, Exoplanet Exploration Program Office

The last several months have seen exciting changes and milestones of success across the Program and the community.

- Here in the Program Office, we have added two new outstanding members - Dr. Karl Stapelfeldt as the

September 10, 2015

Oxygen on exoplanets isn't proof of life

September 4, 2015

Seeing Earth as an exoplanet: space probe spots nitrogen

August 17, 2015

How to teach 'exoplanets' and the search for habitable worlds

August 14, 2015

Exoplanet snapshot: New imager captures young 'Jupiter'

July 31, 2015

Exoplanets 20/20: Looking back to the future

July 23, 2015

NASA's Kepler mission discovers bigger, older cousin to Earth

July 23, 2015

Finding another Earth

July 8, 2015

Will the real 'first exoplanet' please stand up?

June 25, 2015

Can planets be rejuvenated around dead stars?

June 16, 2015

Finding out what makes hot Jupiters tick

May 13, 2015

The weather on alien worlds: astrophysicists prepare forecasts for planets beyond our solar system

EVENTS

**32nd Space Symposium
April 11-14**

Location: Colorado Springs, Colorado

**High Contrast Imaging on Segmented Aperture Workshop
May 5-6**

Location: Pasadena, California

**Resolving Planet Formation in the Era of ALMA and Extreme AO
May 16-20**

Location: Santiago, Chile

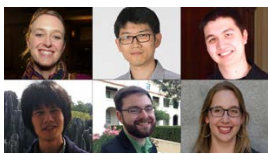
**ExoPAG 14
June 11-12**

Location: San Diego, California

new Program Chief Scientist, and Keith Warfield as the new Program Chief Engineer. We are truly excited to introduce these valued team members.

- In February, WFIRST passed KDP-A making it an official NASA flight project. The WFIRST mission will continue the tradition of collaboration across a variety of centers and institutions, with responsibilities shared among Goddard Space Flight Center, Jet Propulsion Laboratory, Caltech's Infrared Processing and Analysis Center, and the Space Telescope Science Institute. In December the WFIRST Formulation Science Investigation Teams were announced; you can find them here: (http://wfirst.gsfc.nasa.gov/science/Selected_WFIRST_Formulation_Science_Investigation_Teams.html)
- In January, the StarShade Readiness Working Group (SSWG) charter was signed. The group will deliver by July 2016 a recommendation for a plan to validate starshade technology prior to building and flying a starshade science mission. You can learn more about the SSWG here: <http://exep.jpl.nasa.gov/sswg/>.
- The Exoplanet Exploration Program Technology Plan 2016 Appendix has been released. It covers specific technologies that are needed to enable the next NASA telescope that will search for life in the atmospheres of exoplanets. You can find the Plan Appendix and stay up to date with ExEP Technology here: <http://exep.jpl.nasa.gov/technology/>.

3. Rising Stars: NASA announces Astronomy and Astrophysics Fellows for 2016



Excerpted from [March 25th press release](#)

NASA has selected 36 fellows for its prestigious Einstein, Hubble and Sagan fellowships. Each post-doctoral fellowship provides three years of support to awardees to pursue independent research in astronomy and astrophysics. The new fellows will begin their programs in the fall of 2016 at a host university or research center of their choosing in the United States.

The Sagan Fellowship, created in September 2008, supports 6 scientists whose research is aligned with NASA's Exoplanet Exploration Program. The primary goal of this program is to discover and characterize planetary systems and Earth-like planets around other stars.

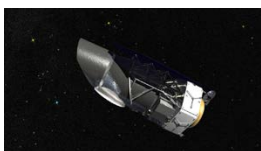
The 2016 Class of Sagan Fellows covers almost all aspects of exoplanet research: from the theory and observation of forming planets and the study of exoplanet atmospheres, to the architecture of planetary systems and the search for habitable exo-Earths. With their innovative ideas, technical skills and leadership abilities, these young scientists will expand the frontiers of the exciting field of astrophysics.

The six 2016 Sagan Fellows are listed below with their host institutions:

- Katherine Follette, Stanford University, Palo Alto, California
- Jeffrey Fung, University of California, Berkeley
- Samuel Halverson, University of Pennsylvania, Philadelphia
- Kento Masuda, Massachusetts Institute of Technology, Cambridge
- Benjamin Montet, University of Chicago, Illinois
- Caroline Morley, Harvard University, Cambridge, Massachusetts

Meet the 2016 Sagan Fellows and read the full press release here: <http://planetquest.jpl.nasa.gov/news/255>

4. WFIRST Enters Formulation Phase



By Ingolf Heinrichsen, NASA Jet Propulsion Laboratory Program Office Mission Manager for WFIRST

After years of preparatory studies, NASA is formally starting an astrophysics mission designed to help unlock the secrets of the universe -- the Wide Field Infrared Survey Telescope (WFIRST).

The NASA Agency Program Management Council passed the mission through its Key Decision Point A (KDP-A) on February 17th and turned the study into an actual flight project in its formulation phase. Up to this point, the study was known under the acronym WFIRST-AFTA, for its use of the 2.4m telescope asset and to distinguish it from earlier similar studies. It has now dropped the AFTA moniker and from now on, it is simply known as the WFIRST mission.

Slated to launch in the mid-2020s, the observatory will begin its 6-year operations after traveling to a gravitational balance point known as Sun-Earth L2, which is located about one million miles from Earth directly opposite the Sun.

228th American Astronomical Society

June 12-16

Location: San Diego, California

SPIE 2016 Astronomical Telescopes and Instrumentation

June 26-July 1

Location: Edinburgh, Scotland

Exoplanets I

July 3-8

Location: Davos, Switzerland

2016 Sagan Summer Workshop

July 18-22

Location: Pasadena, California

NEXSS Exoplanet Biosignatures Workshop

July 27-29

Location: Seattle, Washington

Approaching the Stellar Astrophysical Limits of Exoplanet Detection: Getting to 10 cm/s

August 28 - September 18

Location: Aspen, Colorado

AIAA Space 2016

September 13-16

Location: Long Beach, California

PROGRAM WEBSITES

Exoplanet Exploration Program (ExEP)

<http://exep.jpl.nasa.gov/>

PlanetQuest - Public Outreach Website

<http://planetquest.jpl.nasa.gov/>

NASA Exoplanet Science Institute (NExSci)

<http://nexsci.caltech.edu/>

NASA Science Astrophysics

<http://science.nasa.gov/astrophysics/>

NASA Cosmic Origins Program (COR)

<http://cor.gsfc.nasa.gov/>

NASA Physics of the Cosmos

The mission is led by NASA's Goddard Space Flight Center in Greenbelt, Maryland, which will also build the spacecraft and the wide-field camera instrument in addition to integrating and testing the complete flight system. NASA's Jet Propulsion Laboratory in Pasadena, California will manage the mission's 7.8-foot (2.4-meter) telescope, built by the Harris Corporation, and deliver the coronagraph instrument. The Infrared Processing and Analysis Center (IPAC) at the California Institute of Technology in Pasadena and the Space Telescope Science Institute (STScI) in Baltimore, Maryland will share the science center activities, under Goddard leadership.

Read the full press release here: <http://www.nasa.gov/press-release/nasa-introduces-new-wider-set-of-eyes-on-the-universe>

5. WFIRST Formulation Science Investigation Teams (SITs) Selected



NASA announced on December 17, 2015 the selection of the following Formulation Science Investigation Teams for the WFIRST mission. These teams will work for 5 years with the NASA and Project teams on science requirements, mission design and scientific performance predictions for the mission.

The list of Principal Investigators can be found here:

http://wfirst.gsfc.nasa.gov/science/Selected_WFIRST_Formulation_Science_Investigation_Teams.html

6. WFIRST's Occulting Mask Coronagraph Testbed Incorporates Several Firsts for High-Contrast Imaging



By Ilya Poberezhskiy, WFIRST Coronagraph Testbed Manager, and Hong Tang, High Contrast Imaging Testbed (HCIT) Facility Manager, Jet Propulsion Laboratory

This February, for the first time, the dynamic Occulting Mask Coronagraph (OMC) testbed was placed into HCIT-1 vacuum tank to commence the work on the last, and most challenging, WFIRST system-level coronagraph milestone #9.

This advanced testbed has many new features for more realistic testing of space coronagraphs:

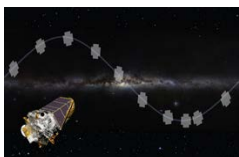
- Masks and stops for two coronagraph modes (Shaped Pupil and Hybrid Lyot) on the same testbed - similar to WFIRST flight coronagraph instrument - with mechanisms to remotely switch between these two modes
- A scaled mini-WFIRST telescope simulator with a representative obscured pupil that can produce expected on-orbit disturbances such as telescope pointing errors and thermal drifts
- A low-order wavefront sensor that uses the rejected "star" light and is capable of both sensing angstrom-level wavefront errors and controlling a fast-steering mirror, focus adjustment, and a deformable mirror to mitigate on-orbit disturbances that degrade contrast
- Highly stable and extensively modeled optical mounts to enable the validation of coronagraph bench structural, thermal, optical, performance (STOP) models

Improvements were also made to the vacuum chamber's mechanical isolation, thermal insulation, and stray light control.

The WFIRST coronagraph team and the HCIT facility team have worked for over a year to design, model, build, test and integrate all the components and subsystems that went into this new high-fidelity testbed. Now the hard work of demonstrating that WFIRST coronagraph works in a simulated on-orbit environment really begins!

- WFIRST is a NASA project managed by the Goddard Space Flight Center
- WFIRST coronagraph instrument is managed by the Jet Propulsion Laboratory
- HCIT is a NASA facility funded by the Exoplanet Program Office

7. K2 - Planets to Dark Energy



By Steve Howell, NASA Ames Research Center, Kepler/K2 Project Scientist and Knicole Colon, NASA Ames Research Center, Kepler/K2 Guest Observer Office Research Scientist

We are coming up on the 7th anniversary of the launch of the Kepler spacecraft and the 2nd year of operation of the K2 mission. K2 is unique in that it observes

the Ecliptic (the Zodiac) in the sky in 80-day campaigns, durations that are limited by solar angle constraints. With this setup, K2 offers a wide variety of science return. You can find an overview of all K2 Campaign fields here: <http://keplerscience.arc.nasa.gov/k2-fields.html>.

Science unique to K2 includes a microlensing campaign, which will begin in early April 2016 and is a WFIRST-like observational program that involves tens of ground-based telescopes planning to provide simultaneous observations. You can find more information about the K2 Campaign 9 Microlensing experiment here: <http://keplerscience.arc.nasa.gov/k2-c9.html>.

In exoplanet science, K2 observes everything from O and B stars to late M stars, brown dwarfs, and even white dwarfs. This sample consists of bright stars allowing easy RV follow-up and nearby stars providing good platforms for high resolution imaging follow-up. Exoplanets being discovered by K2 are generally small (<4 Earth radii), with some orbiting in or near the Habitable Zone and with many able to have masses measured. In particular, the cool, rocky planets K2-18b and K2-3b will be two of the first JWST exoplanet targets for which atmospheric composition may be measured.

At the other end of the spectrum, K2 is providing cosmologists with information to unlock the secrets of supernova (SN) explosions. K2's observations of thousands of galaxies are yielding many dozens of SN light curves, captured and well sampled in the first few hours to days. For Type II SN, this provides observations of the shock breakout and determinations of the collapsing star radius. K2 can also identify the progenitors of Type Ia SN, which to date, appear to be coalescing white dwarfs.

8. NN-EXPLORE: Accurate Stellar Characterization for Kepler Mission Exoplanet Host Stars



By Verne V. Smith, National Optical Astronomy Observatory, NOAO System Science Center Director

The Kepler mission has had an enormous impact on observational studies of exoplanet systems as a result of its mission to detect planetary transits from Earth-sized planets orbiting solar-type stars in the habitable zone. Since the transit depth reveals primarily the ratio of exoplanet radius to host star radius, the derived physical size of the planet depends on knowing the physical size of the host star. In addition, measuring the mass of the exoplanet from the reflex stellar radial velocity requires knowledge of the host stellar mass. Thus, exoplanet studies are inextricably tied to stellar astrophysics. The more accurately these stellar parameters can be determined, the more accurately exoplanet properties can be determined.

As part of the NASA-NSF Exoplanet Observational Research (NN-EXPLORE) program, our team is using the WIYN/Hydra echelle spectrograph (Kitt Peak, Tucson, Arizona) to provide high-resolution ($R \sim 25,000$) spectra of Kepler exoplanet host stars that we then analyze to determine accurate stellar parameters and detailed chemical compositions. (Learn more about NN-EXPLORE here: <http://exep.jpl.nasa.gov/NNExplore/>) The figure here: <http://exep.jpl.nasa.gov/newsletters/issue16/NNEXPLORE/> shows a short wavelength piece of a Hydra spectrum for the near-solar twin exoplanet host star Kepler 452; whose Earth-size planet is sometimes referred to as Earth 2.0.

After receiving study reports from two teams, NASA has selected the NEID instrument (PI Dr. Suvrath Mahadevan, Penn State) for development. NEID is an Extreme Precision Doppler Spectrometer (EPDS) that will be commissioned on the WIYN telescope by 2019.

NASA will also manage an exoplanet-targeted Guest Observer program with existing instrumentation. Call for proposals are issued by NOAO and due on the normal semester schedule. Deadlines are the last day in September for the following "A" semester (February 1 - July 31) and the last day in March for the following "B" semester (August 1 - January 31). Proposal submission information can be found at <http://ast.noao.edu/observing/proposal-info>.

For more detailed analysis, read the full article here: <http://exep.jpl.nasa.gov/newsletters/issue16/NNEXPLORE/>

9. NASA Selects Instrument Team to Build Next-Gen Planet Hunter



Excerpted from March 29th press release

NASA has selected a team to build a new, cutting-edge instrument that will detect planets outside our solar system, known as exoplanets, by measuring the miniscule "wobbling" of stars. The instrument will be the centerpiece of a new partnership with the National Science Foundation (NSF) called the NASA-NSF Exoplanet Observational Research program, or

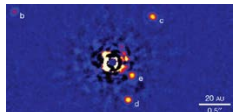
NN-EXPLORE.

The instrument, named NEID (pronounced "nee-id"), which is short for NN-EXPLORE Exoplanet Investigations with Doppler Spectroscopy, will measure the tiny back-and-forth wobble of a star caused by the gravitational tug of a planet in orbit around it. The wobble tells scientists there is a planet orbiting the star, and the size of the wobble indicates how massive the planet is.

The highly precise instrument, to be built by a Pennsylvania State University research group led by Dr. Suvrath Mahadevan, will be completed in 2019 and installed on the 3.5-meter WIYN telescope at the Kitt Peak National Observatory in Arizona.

Read more about the NEID instrument here: <http://exep.jpl.nasa.gov/newsletters/issue16/NextGen/>

10. Direct Imaging of Exoplanets: New Studies Clear a Path to 2020 Decadal Survey



Two mission studies of large space borne telescopes are now underway in anticipation of NASA's 2020 Astronomy and Astrophysics Decadal Survey. NASA has announced the membership for the flagship mission Science and Technology Definition Teams (STDTs). You can find the membership for the HabEx study here:

<https://exep.jpl.nasa.gov/files/exep/HabExSTDTPdf.pdf> and for the LUVOIR study here:

<http://cor.gsfc.nasa.gov/studies/luvoir.php>. Updates on the studies will be posted here:

<http://exep.jpl.nasa.gov/dstdt/>.

The Habitable Exoplanet Imaging Mission Study, or HabEx, posits an L2 or Earth-trailing telescope with an aperture in the range of 2.4 to ~8 meters and a wavelength range covering at least the optical, and possibly extending into the near infrared and ultraviolet. It was one of four large missions recommended by three NASA Program Assessment Groups (PAGs). It also was endorsed by the NASA Advisory Council's Astrophysics Subcommittee as worthy of NASA study in preparation for the 2020 Decadal Survey. Heading the project are HabEx study scientist Bertrand Mennesson and study manager Keith Warfield, both of JPL.

HabEx's main science goal would be the direct imaging of Earth-sized planets in the habitable zones of other stars, using spectroscopy to look for signs of habitability and biological activity on these exoplanets. It also would seek to understand the atmospheres and surface conditions on a diverse set of exoplanets, including rocky planets, gas giants and ice giants. High contrast observations would also allow HabEx to characterize the architecture of exoplanetary systems, and study circumstellar disks at different stages of evolution. The upcoming study will also evaluate and prioritize the key non-exoplanet ancillary astrophysics programs that could be pursued with this large and uniquely stable space telescope.

The second study is for the Large UV-Optical-IR Surveyor (LUVOIR) mission. Such a general purpose, multi-wavelength observatory in the eight to 16-meter range was called for in NASA's "Enduring Quests, Daring Visions" report. The LUVOIR study is being executed by Goddard Space Flight Center, under the leadership of a Science and Technology Definition Team drawn from the community, study scientist Aki Roberge, and study manager Julie Crooke.

Equipped with ultra-high-contrast imaging and spectroscopy capability, one of LUVOIR's primary goals is detailed characterization of a wide range of exoplanets, including those that might be habitable or even inhabited. The mission would also provide the tools for enormous advances in a broad range of general astrophysics, from the epoch of reionization, through galaxy formation and evolution, to star and planet formation. LUVOIR's capabilities for advanced remote sensing of Solar System bodies will be examined in this study as well. More information on science enabled by LUVOIR may be found in "Cosmic Birth to Living Earths", a recent report on a LUVOIR-like mission concept (the High-Definition Space Telescope) commissioned by the Association of Universities for Research in Astronomy.

11. ExEP Celebrates 20 Years of Exoplanets



*By Anya Biferno, NASA Jet Propulsion Laboratory
Program Public Engagement Specialist*

2015 marked a banner year for public engagement activities. The Exoplanet Travel Bureau poster series debuted in January 2015; the first three were so successful

that two new posters were created (you can find all five here:

<http://planetquest.jpl.nasa.gov/exoplanettravelbureau/>), and an entire series from around the solar system was launched at JPL (you can find those images here: <http://www.jpl.nasa.gov/visions-of-the-future/>).

The Program reached thousands of new people through participation in several large-scale events such as

South by Southwest and Global Citizen 2015 Earth Day. The Program and partners created dozens of new products and materials (<http://planetquest.jpl.nasa.gov/imagesvideo>) and a new exoplanet film, 'The Search for Another Earth' (<http://planetquest.jpl.nasa.gov/video/80>), in celebration of the 20th anniversary of the discovery of 51 Pegasi b. Several celebratory events were held in October to mark the occasion. Additionally, a permanent 'Eyes on Exoplanets' kiosk was unveiled at the National Air and Space Museum and will introduce millions of visitors each year to the world of exoplanet discovery.

Looking to the future, ExEP Public Engagement will begin work as a Co-I on the new NASA's Universe of Learning initiative (PI, Space Telescope Science Institute). Other Co-Is include the Chandra X-ray Center, the Infrared Processing and Analysis Center, and Sonoma State University. NASA's Universe of Learning is an integrated Astrophysics STEM Learning and Literacy Program that seeks to advance STEM learning and literacy by creating and delivering a unified suite of education products, programs, and professional development that spans the full spectrum of NASA Astrophysics.

Coming soon: ExEP Public Engagement will be launching a new exciting web portal to exoplanet discovery - check us out in April!

To **SUBSCRIBE** - click [here](#)

To **UNSUBSCRIBE** - click [here](#)

To **Manage your preferences** - click [here](#)

Comments/Feedback: nasaexoplanetnews@jpl.nasa.gov.

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